A “word” is any sequence of letters from A to Z, which is not limited to dictionary words.

For any word with at least two different letters, there are other words composed of the same letters, but in a different order. For instance: *stationarily*, *antiroyalist*, and *aaiilnorstty* are all “words” composed of the same set of letters, where *stationarily* and *antiroyalist* are dictionary words. In addition, a number can be assigned to every “word” based on where it is located in an alphabetically sorted list of all the words that are made up of the same set of letters.

The simplest solution to this problem would be to generate an alphabetically sorted list that contains every unique word for a given set of letters. Then, the rank of each word is the index of its position in the sorted list.

Write a program that takes a “word” as a command line argument, and prints the rank of the “word” from the alphabetically sorted list to standard output. The program should be able to accept any word of 25 letters or less in length, should use no more than 1 GB of memory, and take no more than 5oo milliseconds to run.

Some sample “words” and their rank:

- ABAB = 2
- AAAB = 1
- BAAA = 4
- QUESTION = 24572
- BOOKKEEPER = 10743